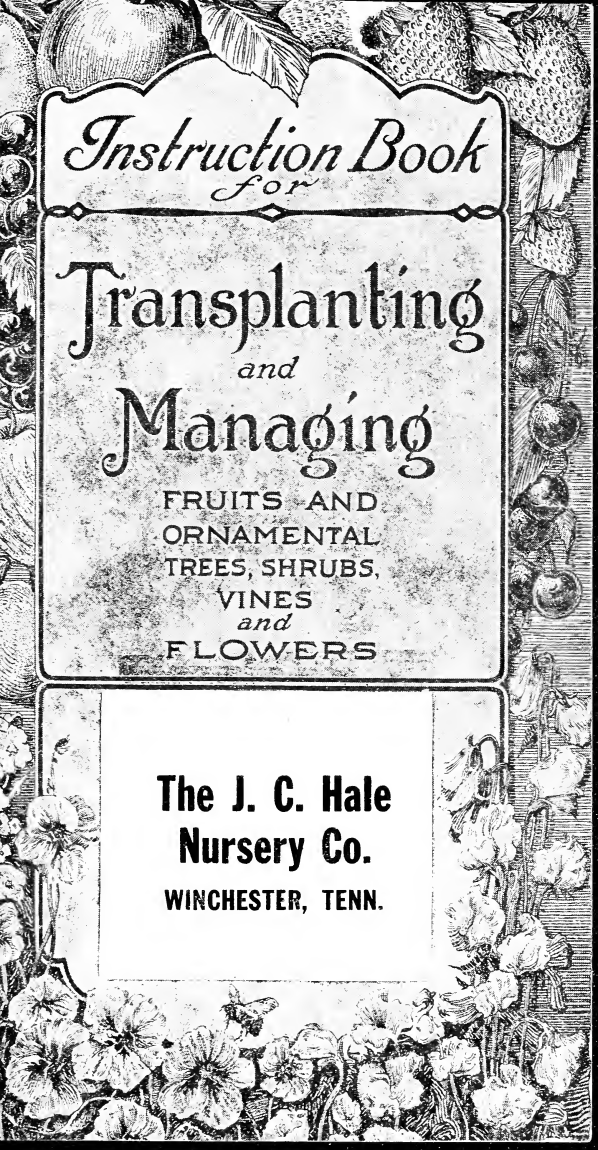


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Instruction Book
for

Transplanting
and
Managing

FRUITS AND
ORNAMENTAL
TREES, SHRUBS,
VINES
and
FLOWERS

**The J. C. Hale
Nursery Co.**

WINCHESTER, TENN.



INSTRUCTIONS

PREPARING THE GROUND.

Before planting fruit trees the soil should be made mellow by repeated plowing; and where the soil is densely packed, a subsoil-plow should be used and the ground stirred up from eight to ten inches deep. If this is neglected the roots are soon surrounded by a strong wall and you cannot expect them to live many years. Wherever this system has been practiced, healthy vigorous trees and fine fruit has been the result.

RECEIVING AND CARE OF TREES.

Trees are frequently ruined by lack of care, of bad managing after they fall into the hands of the purchaser. We have known them to lay for days tied up in a bundle just as received from the nursery, exposed to sun and wind and then set out, and with such treatment they cannot be expected to live when one hour's time would have buried them in the ground and placed them beyond danger.

When trees are received, the roots should be covered with a wet blanket or straw until they reach their destination. If the roots become dried from too long exposure, straw should be spread on the ground and the trees laid upon it, then cover the roots and tops with straw, and the whole well watered. In this condition they should remain for forty-eight hours, when they will be found as fresh as when first found in the nursery. If trees are received in a frozen state, they must be buried entirely, roots, top and all, from thirty-six to forty-eight hours, the earth will draw out the frost without injuring the trees. If the trees are in good condition when received or after remaining in the straw forty-eight hours and the holes are not yet dug, or the ground too wet to plant, then dig a trench and lay the trees in a slanting position so that you can cover up the roots and two-thirds of the body. In this position let them remain until the holes are dug or the ground is in a condition to receive them. When trees are received in the fall keep them as described in the last paragraph of this book.

DIGGING THE HOLES.

If the soil for an orchard has been properly prepared by subsoiling and deep plowing, then the opening of holes becomes a very simple matter; and really this is by far the easiest and best plan, for if the soil is thoroughly pulverized to a depth of from eighteen to twenty inches all that is necessary is to measure off

the distance at which the trees shall stand from one another, and the order of planting; flag poles are to be set in the line to be occupied by the first row of trees, and a deep furrow is then opened with a large plow, drawn by a steady pair of horses. The poles are then moved and set for the next row of trees, and so on, until the whole is laid off, making the furrows as straight as possible. This done, a lighter plow, drawn by a single horse, is driven across these deep furrows, at the proper distances, so that the intersection shall indicate where the trees are to stand. A few shovelfuls of earth removed, and the hole is ready for the tree. If the furrows have not been recently made, it will be well always to remove a portion of the surface, so as to have fresh soil next to the roots.

Where only a few trees are to be planted, and the soil has not been subsoiled, or where trees are to be planted in sod, then the holes ought to be at least four feet wide and twenty-four to thirty inches deep, the subsoil thrown back, and the holes filled up to a proper depth to receive the trees with a fine top soil.

Fig. 1.



**Improperly Planted
SURE TO DIE**

Fig. 2.



**Properly Planted
WILL LIVE**

PRUNE BEFORE PLANTING.

Both root and top should be pruned at the time of planting and before the tree is set in the ground; the neglect of this causes the loss of an immense number of trees. When taken from the nursery the roots are more or less mutilated, therefore the balance of the trees must be restored by cutting off a portion of the side and top branches. First cut off the ends of all broken and bruised roots with a sharp knife, in a slanting direction, on the under side; this will cause the wound to heal over readily, by throwing out plenty of fibrous roots at the end; then cut back each branch or side limb to a bud not more than four or five inches above the highest side limb. Where there are no side limbs the tree should be headed back to a height proper to form a top. None of the lower limbs should be cut off entirely, as it is best to form the head as low down as possible, so that the limbs and leaves will protect the trunk of the trees from the direct rays of the sun.

DEPTH TO PLANT.

All kinds of fruit trees should be planted from ten to twelve inches deeper than they grew in the nursery.

PLANTING.

When ready to plant and before removing the trees from the trench, dig a hole about the size required for a tree; fill in to about six inches of the top with water; then fill it with fine soil and stir it into a pretty thick puddle. Take from the trench a few trees at a time, prune the roots and top as directed, and place them in the puddle so that the roots are well covered; let them remain until the hole is ready and remove one by one as they are needed. Use good mellow top soil in the bottom of the hole and around the roots, slanting it a little to the southwest, leaving a little mound in the center of the hole; place the tree in position and arrange it to the proper depth by filling in or raking back the soil to or from where the tree will stand, then fill in fine, mellow soil between and around the roots with the hand, arranging all the roots in their natural position, and packing in the soil carefully around them. When the roots are barely covered, sprinkle on not less than a half bucket of water to moisten the soil and settle it among the roots; then fill to the top and press down the earth around the tree with the foot; throw a bucket of water around each tree to settle the ground, and scatter a little soil on top to prevent baking. Trees set out in this manner and well mulched

will withstand almost any amount of drought. Large trees that are much exposed to the winds should be tied to a stake in such a manner as to prevent chafing.

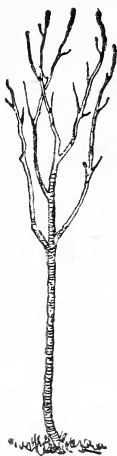


FIG. 1.



FIG. 2.

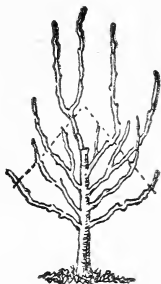


FIG. 3.

Figure 1 shows a standard apple or pear tree in the spring after it has grown one season. In pruning cut above a bud that is on the outside of a limb, as that bud will develop into a branch, growing outward, and it is desirable to have the growth of the tree spreading, in order to let in sunlight and air. If the limb is cut just above a bud on the inside, the future branch will grow toward the main stock.

Figure 2 is the two or three years' dwarf pear at the time of setting out. The dotted lines show where the branches should be cut off at the time of planting. This should be done without fail.

Figure 3 represents the tree after it has made its first summer's growth since planting. The dotted lines show where it should then be cut back. The same general course must be pursued for every pruning afterwards, retaining the pyramidal form. Prune any time from November to April, but prune every year.



FIG. 4.



FIG. 5.

Figure 4 represents one of our peach trees as it is sent from the nursery.

Figure 5 shows how it should look when it is planted by the customer.

MULCHING.

Mulching is of vital importance and should never be neglected; the material used every third year should be coarse stable manure, for intervening years such material as straw, grass, hay, sawdust or tanbark; any of above to be spread around the tree for a space of from four to five feet and three to six inches deep. This mulch should be placed around the trees about December 1st each year, and left until about May 10th, when the manure should be removed and if other materials are used it should be removed also, if the land is to be cultivated. Thorough cultivation is always best, but if the orchard cannot be cultivated the mulch material named above except manure should be left around the trees all summer, to hold moisture and keep down grass and weeds. The object of mulching in early winter is to keep the ground from thawing around the roots until late in spring. More trees die from alternate freezing and thawing of roots than from all other causes, and the mulch will carry the roots through in perfect condition, if enough is kept on.

AFTER CULTURE.

The trees should be kept free from grass and orchard except potatoes, beans, peas, carrots or corn. Cultivate well in the early part of the summer and in the month of October. The principal of cultivation is that the loose and pulverized soil on the surface prevents the evaporation of moisture and keeps weeds in check. Give under drainage when it is needed, and attend annually and carefully to surface drainage. Bone dust, salt and plaster, are excellent manure for trees when used on the surface. No manure of any kind should be put in the hole with the tree; it is very injurious, causing a rank growth, making the tree tender and consequently short lived.

AFTER PRUNING.

The great majority of people do not take proper care of their trees after planting. This is a great mistake. If a tree or vine does not receive the right kind of care, and enough of it when young, it will never attain to a healthy old age. Very much has been said about pruning by various authors. Judging from these and our own experience and observations, we would say: Looking at the health and vigor of a tree, the best time to prune is just before sap begins to run, early in the spring.

Summer pruning is done to check rank growth and promote fruitfulness. This should be done very cautiously, if at all, as too much pruning will harm the tree. When we are in a hurry to have a tree bear, we pinch off the bud on the end of the limbs a little in summer. Do not fear to prune the tree when it is young—that is, when it is not growing—and keep pruning as long as it lives.

STANDARD APPLE TREES

should be planted sixteen to eighteen feet apart according to the nature of the soil and climate. In the North it has been found of advantage to plant about sixteen feet apart, and keep the heads low, so as to protect the trunk from the direct rays of the sun. Plant out and cultivate as directed, and do not neglect to mulch them well about December 1st of each year.

CRAB APPLES

should be planted eighteen to twenty feet apart. They are very hardy and bear abundantly. The fruit is highly valuable for preserving and jelly and makes the finest cider known. Plant and cultivate as the apple.

PLUMS

should be planted twelve to fourteen feet apart. A clay loam or heavy loam is best adapted to

the plum. In such soils the tree is found to be more vigorous, healthy and productive than in light soils. Where trees are planted in very light soils, clay may be supplied to advantage. To prevent the destruction of the fruit by the curculio, the plan of jarring off the insects on sheets and destroying them, is the most sure and effective. This should be repeated twice a day during the early stages of the fruit. The best time is in the morning and evening when the dew is on.

CURRENTS

should be planted in the garden four feet apart. Sawdust or tanbark should be used as mulch. The currant flourishes in almost every kind of soil, but to have the fruit in perfection, plant in rich, deep soil, and give good annual pruning and cultivation. When plants are grown as stools or bruches the older and feebler suckers should be cut out, such as crowd and over bear the plant. Of late years the currant worm has been very troublesome but if the bushes are sprayed with powdered white Hellebore, say a teaspoonful diluted in a pail of water, when the leaves are formed, also when the fruit is beginning to form, the currant worm will be disposed of.

GOOSEBERRIES

should be planted the same distance apart as currants. The plants should be annually and rather severely pruned by thinning out all feeble and crowded branches. Mulch the same as currants.

RASPBERRIES

should be planted four by six feet apart, in a deep soil, one that will retain moisture well in drought. In training allow only a few canes to grow from each plant, cutting away all suckers to throw the strength into the stocks for bearing. All old canes should be removed when the bearing season is over. Tender varieties should be protected during the winter in the northern states by bending the canes to the ground and covering with dirt.

BLACKBERRIES

require the same kind of soil and treatment as raspberries, except that they should be planted in rows eight feet wide and four feet apart in the row. A neat and improved method of pruning will make the plants self-sustaining bushes, viz.: As soon as the plants are about four feet high, clip off the points of the growing canes and repeat the operation several times until they assume the form of a bush. If not pruned in this manner they require to be tied to a stake or wire trellis. Mulching is of great advantage to both raspberries and blackberries.

GRAPES

if planted for fastening to a trellis or arbor, should be planted twelve feet apart; but if tied to stake, six feet apart. The holes should be dug not less than four feet wide and two feet deep. Burying bones under the roots makes the vine much more prolific, and the fruit of better quality. The bones should be put in the bottom of the hole and covered with fine soil, then pour in a little water to settle the dirt among the bones; then fill up with mellow soil to within five or six inches of the top; cut off the bruised and broken roots; straighten the roots to their natural position and cover with fine mellow soil about two inches, packing it carefully with the hand, then sprinkle on sufficient water to moisten the roots, fill up the hole and press down the dirt. A stake should be placed with each vine at the time of setting six or seven feet high. The first year train one shoot only up to the stake, pinching off all others, and also the latter or side shoots that appear during the first season; the following spring cut the vine down to within three or four buds of the ground.

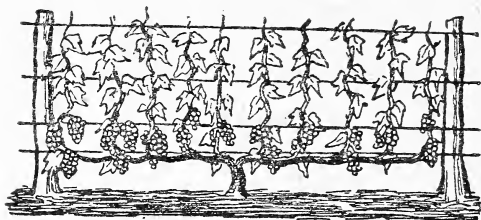


FIG. 6

The next season allow but two or the strongest buds to throw out shoots. These, in the fall, will be from five to seven feet long and should be fastened to the lower part of the trellis. When growth commences, pinch the buds so that the shoots will be from ten to twelve inches apart. As they grow, train them perpendicularly to the second, third and fourth bars of the trellis, and in the fall the vine, with its fruit, will present the appearance shown in Figure 6, as no fruit should be allowed to set above the second bar of the trellis. During the season when the shoots shall have reached the upper bar of the trellis, they may be pinched to prevent further growth.



FIG. 7

Late in the fall, cut back to two buds, as shown in Figure 7. The following spring allow but one bud to throw out a shoot, and treat as in the previous year. This system of pruning should be followed each year.

STRAWBERRIES

The ground should be prepared the same as for other crops; if not already rich, make it so by well rotted manure. Mark out the rows the desired width, and set plants ten to seventeen inches distant in the rows; if set twelve inches, in rows four feet apart, an acre will require 10,890 plants; same as if set sixteen inches in rows three feet apart. In early winter when the ground is frozen, cover the whole with long straw, which should be removed from the plant in the spring but allowed to remain between the rows as a mulch to keep the berries clean next summer.

If all staminate varieties are planted each plant will fertilize itself and bear fruit, but when pistillate varieties are planted alone, they will never bear fruit. Therefore they must be planted not farther than four feet from a few of the staminate varieties to insure pollenization to get the best results. plant all staminate varieties such as Bederwood, Senator Dunlap, Splendid, Lovett, Enhance, Capt. Jack Brandywine and Parker Early or alternate rows of staminate and pistillate varieties. By planting alternate rows of Bederwood, Senator Dunlap and Warfield the best results are produced in Minnesota, generally.

EVERGREENS

The holes ought to be dug two feet wide and eighteen inches deep. Fill up to the proper height with well pulverized earth, cut off all the bruised and broken roots; place them in their natural position in the hole; cover them with rich mellow soil; then pour on water until the roots are thoroughly wet; then fill to the top and pack down with the foot. Mulch your evergreens with good, rich manure each year about November 1st, and keep well cultivated during the months of May and June of the first five years after planting.

ROSES

Plant and treat in the same manner as evergreens. Shorten all of the branches to about

one-half their original length. Grass or weeds should never be allowed to grow within two feet of the stock and all old stocks should be trimmed out every fall. Cover with dirt about November 1st of each year to keep from freezing down.

BULBS—OUTDOOR CULTURE.

October and November is the proper time for planting Hyacinths, Crocuses, Tulips, Snowdrops and other bulbs, and not in the spring. Let the soil be dug to the depth of eighteen inches, thoroughly pulverized, and if the soil is poor, enrich with thoroughly decomposed manure; if the soil is too close or heavy, mix some sand with it and thoroughly incorporate the whole. When covered with half rotted manure this will sufficiently enrich the soil. The best covering is leaves or half decayed manure—never—rotten manure, as it excludes light and air. By excessive covering, many bulbs are annually lost. Cover then from two to four inches, after the ground is frozen two or three inches deep. This will help to secure the bulbs from the depredations of mice and other vermin. It is not the freezing that kills, but the continued thawing and freezing, thus lifting the bulbs to the surface of the ground. As soon as the coldest weather is over the covering may be removed. When the blooming season is past, pinch off all the flower stems, allowing the bulbs to remain until the leaves are yellow. If the beds are wanted for bedding plants, take up the bulbs and re-plant them very thickly in any vacant spot, allowing them to remain until the foliage is decayed; then if named varieties, place each one in sand, putting them away until fall planting.

HYACINTHS IN GLASSES

Nothing more easy, more fragrant, or will more richly reward the grower than the Hyacinth. For pots and glasses the named varieties are the most desirable. To grow them in glasses the single ones are preferred, although some of the double are equally as good. First let your glasses be thoroughly cleaned, then fill them with water; the base of the bulb just and barely touching the water; place them carefully away for three or four weeks in a dark closet. Then you will find that the roots have nearly filled the glass; bring them to the light gradually. Avoid placing them on the window ledge, as the cold draughts chills the roots; neither expose to the full sun, but keep them in a room of moderate temperature, with plenty of light and air. As the water evaporates, fill up with water at the same temperature as the room. Never change the water unless it becomes tainted, neither use cotton or other fid-

fads. The simpler the treatment, the more certain of success.

If the leaf mold, and special compost considered necessary for the amateur to grow these favorites to perfection is not available, take any ordinary garden soil; if poor, mix it with some thoroughly decomposed manure and fine sand; make a heap of it, turning it over once or twice. Select the deepest pots, plant one or more hyacinth in each, according to the size of the pot, place the bulb not deeper than the shoulder; thoroughly saturate them with water for two or three days, then place them in a box, covering the whole with six inches of damp sand and put them in a cold cellar placing them on the floor, leaving them there for at least four to six weeks, removing them a few at a time to keep up a succession of bloom, bringing them gradually to the light. With the above simple treatment a lady last fall ventured upon what she termed "The deep waters" with hyacinths in glasses and hyacinths, crocuses and Duc Van Thol tulips grown in sand and moss—keeping them in darkness for the time specified. A most magnificent bloom of flowers was the result. The great secret is to obtain the bulbs well rooted, and this can only be accomplished by burying them in darkness. If exposed to the light at the first planting, the struggle between the top and the bottom growth, both particularly weak, commences, and the result is a weakly sickly flower, if any.

HERBACEOUS PAEONIES

The best time to plant them is in the autumn. This is one of the finest herbaceous perennials, perfectly hardy, wonderfully showy and of the easiest culture. They will thrive in any ordinary garden soil, needing no extra care or cultivation. The varieties from the earliest to the latest, afford a succession of bloom for over a month.

LILIES

should be planted in November, five or six inches deep, and may be allowed to remain in the ground for years. These unlike the hyacinth, crocus, etc., if neglected in the fall, may be planted in the spring as soon as the garden is in condition to plant garden seeds.

DAHLIAS

should be planted in the spring in mellow soil, as soon as all danger from frost has disappeared, and the ground is not too wet. In the fall or early winter, before frost, the roots should be taken up, packed in sand, and put away in a dry cellar or dark room, secure from frost.

CLEMATIS VINES

may be planted in the spring or fall. When planted in the fall they should be thoroughly mulched with half-rotted manure, allowing it

to remain after freezing weather is over in the spring. They can be planted two feet apart, allowing four or five different colors to run on the same frame or trellis. The ground should be made rich by using liquid manure, and pouring it around the vines as often as once a month during the growing season. After the blooming season is over in the fall the vines may be cut off near the ground, thus enabling them to throw out more and better shoots the following spring.

SPRAYING—WHEN TO SPRAY

Experience has demonstrated the fact that spraying at the proper time and properly done for protection against destructive insects, rot, fungus and blight, is the best if not the only sure remedy against these enemies of the horticulturist and that it has succeeded and will succeed is evidenced by the rapidly increasing interest manifested in the manufacture, sale and use of spraying machines, and the good results obtained by those who have practiced this method of protection.

Apple Trees—For prevention of leaf blight, spray as soon as the leaves open in the spring, with **Bordeaux Mixture, or ammoniacal carbonate of copper.** To destroy the aphid or plant lice, spray with kerosene emulsion as soon as the pest appears. To destroy the codling moth, canker worm and curculio, spray with Paris green or London purple, $\frac{1}{4}$ pound in 40 or 50 gallons of water, soon after the blossoms fall, and again two weeks later. To destroy the web worm, spray with London purple or kerosene emulsion about August 1st to 10th, or as soon as they appear. This application should be made during the middle of the day, when the worms are out of the webs and feeding on the leaves.

Cherries—Treatment same as recommended for the apple.

Pears—The pear slug can easily be destroyed by spraying with Paris green, four ounces to 50 gallons of water, or kerosene emulsion as soon as it begins operations. Pear and quince blight can be destroyed by spraying with Bordeaux Mixture. The codling moth and curculio should be treated the same as recommended for apple trees.

Plums—Destroy the aphid with kerosene emulsion through a fine spray nozzle. The curculio can be destroyed by spraying with 3 ounces Paris green to 40 gallons of water. First application should be made as soon as blossoms have fallen, and repeated at intervals of a week or ten days. Four applications should be sufficient. Other enemies of the plum will be destroyed by this method, but in all cases be particular to keep the poison and water constantly stirred.

Grape Rot and Mildew—Use the Bordeaux Mixture.

Kerosene Emulsion—Dissolve in two quarts of water one quart of soft soap or one-quarter pound of hard soap, by heating to the boiling point. Then add one pint of kerosene oil and stir violently for from three to five minutes. This may be done by using a common force pump and putting the end of the hose back into the mixture again. This mixes the oil permanently, so that it will never separate, and it may be diluted easily. This mixture should be diluted to twice its bulk with water or about 14 times as much water as kerosene.

Bordeaux Mixture—Six pounds of sulphate of copper are dissolved in six gallons of water; in another vessel four pounds of fresh lime are slacked in six gallons of water. After the latter solution has cooled, slowly turn it into the other solution and add 50 gallons of water. This, when all is thoroughly mixed and strained, is ready for use. In straining this mixture reject all the lime sediment, using only the clear liquid. Strain the whitewash through a coarse gunny sack stretched over the head of a barrel.

BURYING TREES IN FALL

When goods are delivered in the fall of the year, prepare to bury them in the following manner: Select a high location, where water will not stand, dig a trench two feet in depth at one end and sloping upward to six inches at the other, eight feet in length and sufficiently wide to accommodate the trees, etc., when opened out. Cut the bundle open, mud the roots thoroughly, lay the bundle in the trench, the roots at the deep end, sift loose fine moist earth carefully among the roots, if the soil is dry saturate it about the trees with water covering the stock entirely, root and branch, with the soil removed in digging the trench, pack thoroughly to prevent mice from burrowing, and after the ground is frozen to a depth of six inches, mulch with coarse litter to prevent the danger of alternate thawing and freezing. **Do not uncover until time to plant, which can safely be done when land is in suitable condition for planting corn.**

Be sure to remove all moss and straw, and separate the trees, etc., that each plant may be entirely surrounded by soil.

When Spring opens and frost begins to go out, remove the litter or mulch covering from the surface of the ground so that the frost may not be kept in by it. Don't try to dig up your trees until all frost around them is out. If the soil is removed down to the trees and then time allowed them to thaw out in the sun, they will be injured thereby. Don't remove trees until all frost has disappeared.

